

# Exhibit 3

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FOR SETTLEMENT PURPOSES ONLY FRE 408**

UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF NEW YORK

-----X  
JAMES CONTANT, et al,

17 Civ. 3139 (LGS)

Plaintiffs

v.

BANK OF AMERICA CORPORATION, et al,

Defendants  
-----X

**DECLARATION OF EVAN MILAZZO ON BEHALF OF  
NON-PARTY FXCM IN RESPONSE TO PLAINTIFFS' SUBPOENA**

Evan Milazzo, of due age, hereby affirms and declares as follows under penalty of perjury pursuant to 28 U.S.C. § 1746:

1. I am Chief Technology Officer of non-party FXCM Global Services, LLC., an affiliate of Forex Capital Markets LLC (FXCM), where I have worked since 2002. Both companies are subsidiaries of Global Brokerage Inc., f/k/a FXCM Inc. As CTO, I run a team of software engineers and other IT professionals which services affiliate companies in the U.K., Australia, South Africa, and elsewhere.

2. I respectfully make this Declaration in furtherance of FXCM's response to the Plaintiffs' subpoena. I make this Declaration based upon my personal knowledge and experience as CTO at FXCM Global Services and its affiliate companies, as well as a review of documents, files and records kept in the ordinary course of business by FXCM.

3. Pursuant to a June 17, 2019 letter agreement, FXCM has agreed to produce documents in response to items 3, 4, 5, 7 and 13 of the plaintiffs' subpoena, on condition that these documents are designated "Highly Confidential/Attorneys' Eyes Only," and that plaintiffs pay FXCM the reasonable expenses incurred in compliance therewith.

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4. In FXCM's June 17 letter, it agreed to submit a Declaration with information reasonably responsive to requests 1, 8, 12, 14, 15, 17, 18 and 19. Per our agreement, the plaintiffs have withdrawn requests 2, 6, 10 and 16.

5. The following responses are intended to satisfy FXCM's obligations under the parties' June 17, 2019 letter agreement.

**FXCM Trading Platforms**

6. FXCM operates a proprietary trading system that supports all business logic necessary for customers to be able to view real-time prices, place orders, and monitor open and closed trade activity. There are multiple user interfaces supported by this trading system, including the following:

- FXCM Trading Station windows desktop client
- FXCM Mobile Trading Station for iOS and Android
- FXCM WebTS for web-browsers
- ForexConnect API
- FIX API
- Order2Go API
- REST API

7. There have been numerous third-party trading platform vendors that have integrated with FXCM through these APIs.

8. Furthermore, FXCM directly supports the MetaTrader4 trading platform, which is a third party trading platform that FXCM has integrated with its proprietary trading system.

9. This document describes the core functionality of price delivery to customers and order execution for customers of the FXCM proprietary trading system.

**Execution Models**

10. FXCM operates 2 trade execution models: Dealing Desk and Non-Dealing Desk. This document describes the business logic in the FXCM systems that support both models.

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11. The Dealing Desk model is characterized by the fact that FXCM can make a decision to hedge a client order at any time after the client order is executed. In this model, FXCM's profitability is measured as the opposite of client profitability plus the profits from hedge trade activity.

12. The Non-Dealing Desk model is characterized by the fact that FXCM hedges a client order before filling the client order. This model results in a one-to-one relationship between a client trade and a hedge trade, and FXCM's profitability on the trades can be measured as the difference between the price of the client trade and the price of the hedge trade.

13. In both models, FXCM acts as counterparty to the client.

14. The same set of system components are involved in the processing of orders on both the Dealing Desk and Non-Dealing Desk model. Throughout this document, wherever necessary, it will be indicated that the described logic applies only to one of the models. Otherwise, it is assumed the same logic applies to both models.

**Liquidity Management Rules**

**Liquidity Providers**

15. FXCM receives liquidity from a number of sources, both banks and non-bank financial institutions. The model for connectivity and operation with each of these liquidity providers is fairly similar. In most cases, FXCM has a dedicated network circuit to the provider that is not used for any other purpose. The liquidity provider discloses to FXCM its market data and trading interface, which is a FIX API.

16. FXCM then connects to the liquidity provider's FIX API like a client, meaning that it has an account with the liquidity provider and permissions to trade certain instruments. When FXCM connects, there are two channels to the connection, as is standard in the FIX protocol. One channel is used to subscribe for market data quotes for all of the supported

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instruments. The other channel is used for sending orders and receiving execution reports and rejection reports on those orders.

**Order Types (Non-Dealing Desk only)**

17. In order to simplify trading activity with providers, FXCM uses 2 FIX-standard order types with liquidity providers (Previously Quoted, FIX Tag 40 = D; or Limit, FIX Tag 40 = 2). The Time in Force for either order type is always Fill or Kill. This means that FXCM will not accept partial fills from providers in any circumstance, and that if the order cannot be filled immediately, then it should be rejected.

18. After FXCM sends an order, it will receive either an execution report (meaning that the order has been filled in its entirety) or a rejection report (meaning the order was rejected in its entirety). To reiterate, FXCM's orders require a complete fill at the quoted price (for Previously Quoted), or at the order price or better (for Limit).

**Prime Brokers**

19. For some lines of credit, FXCM uses a Prime Broker in order to centralize collateral and all trading activity. The role of the Prime Broker is to act as a credit intermediary between FXCM and the liquidity provider. The Prime Broker is only involved in Post-trade activities and reconciliation. During these Post-trade activities, FXCM will notify the Prime Broker of any deals done with a liquidity provider, and the liquidity provider will notify the Prime Broker of any deals done with FXCM. The Prime Broker will then match the deals and report any discrepancies as part of the reconciliation process.

**Application of Markups**

20. Markups can be applied in one place in the system on a global basis (meaning all clients are subject to the same markups). There are further client-specific markup profiles

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available through the FXCM Back Office system configuration, but those settings fall outside the scope of this document.

21. Bank Adapter –Markups are applied immediately when they are received from a liquidity provider. Because the markup is applied in the bank adapter itself, the downstream calculation of the best bid and offer is based on the marked up prices.

**Calculation of Best Bid/Offer**

22. The top of the quote and matching books, or Best Bid/Offer is calculated by using the lowest Offer and the highest Bid price from all of the providers. Each new quote received from a liquidity provider forces a recalculation of the Best Bid/Offer, and the output stream is always a two-sided quote (even if one side is invalid).

23. In the case that two providers have the same price on their quote, the sorting of the book is done during execution only, and it is based on the execution preference list.

24. As orders hit a quote, the liquidity associated with that quote is deprecated according to the amount of the order(s). While the adjustment in the liquidity is maintained in the book for matching in real-time, the amount of a quote in the stream output will only be reflected when a new quote is received. If at the time of receiving a new quote, the full amount of another quote has been liquidated, then the liquidated quote will become invalid and removed from the book.

**Quote Validity**

25. A key aspect to the construction of the FXCM quote and matching book is the determination of whether a quote is valid or not. Invalid quotes are not included in the calculation of the best bid/offer for the quote book or the matching book, except in the case that there is no valid quote in that instrument from any liquidity provider.

26. The rules below are applied in order to determine quote validity.

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**Tradeable/Non-Tradeable**

27. The Bank Adapter is responsible for determining if a quote is tradeable or non-tradeable. The liquidity provider may pass one or more values to indicate a non-tradeable quote:

- a. If the size of the quote = 0, then the adapter will convert the quote to a non-tradeable quote.
- b. If the bank uses a Non-Tradeable tag in the market data message, then the quote will be treated as non-tradeable.
- c. There is a parameter, called the Minimum Quote Size parameter, which determines the minimum size of a quote that can be valid. If a quote is received for smaller than the minimum size, then the quote will not be used in the BBO calculation.

28. The output prices for a stream can be either Tradeable or Non-Tradeable. After market open, if there are no tradeable prices in the book, then the BBO output will reflect the last tradeable price.

**Remove Quote Command**

29. Whenever there is a rejection on an order, the quote on which that order was placed is immediately invalidated by the engine so that no new orders can be matched against it. When the next quote arrives, the invalidated quote is then removed from the quote and matching books and the book is recalculated.

**Suspend/Resume Commands**

30. There is a command within the system that allows for the suspension of a bank adapter so that the system does not include any new incoming quotes in the quote or matching books. When the suspend command is called, no matching requests can be made against any quotes already in the book from the liquidity provider.

31. There is an additional command that allows for the resumption of quote processing from a provider.

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32.     These commands can be called manually by one of the system administrators, or they can be automatically invoked by rules governing execution (see Execution Control Scenarios).

**Duplicate Quote Handling**

33.     If the Bid and Ask price does not change, then no new BBO quote is generated. The duplicate quote is simply thrown out.

**Quote Timeout**

34.     There is a parameter in the system that defines the timeout for a quote received from a liquidity provider. The purpose of this timeout is to ensure that rejections do not occur in the case that a provider connection is healthy, but the provider is not sending any new quotes. When the quote timeout period is reached, the quote will be invalidated and removed from the matching book.

**Minimum Quote Size**

35.     The Minimum Quote Size parameter is used to restrict the output of the BBO to include only those quotes that are large enough to be used for execution. In this way, the Minimum Quote Size parameter can be used to limit rejections due to a lack of liquidity.

**Bank Adapter Disconnect Control**

36.     To protect orders from timing out when a provider or bank adapter connection is not stable, a control is in place to detect the state of the bank adapter and provider session. If an adapter abruptly disconnects or crashes, all quotes from that provider in the Matching Engine are invalidated.

**Seatbelts**

37.     The broad term 'Seatbelts' is comprised of three price validation checks: Max Price Change, Max Spread, and Min Spread.

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38. All three values are loaded into the system upon initialization.

39. As new quotes come in to the Matching Engine (with bank adapter markups applied), they are validated in a series of checks, which include the three Seatbelt parameters.

40. The first check is Max Spread. The Matching Engine will calculate the new spread of the BBO (when considering the new, incoming quote in the book). If the new Spread is less than the Max Spread value, the quote will proceed to the next check. If the new Spread is greater than the Max Spread value, the new quote will not be published and further checks will not be made.

41. The second check is Min Spread. The Matching Engine will calculate the new spread of the BBO (when considering the new, incoming quote in the book). If the new Spread is greater than the Min Spread value, the quote will proceed to the next check. If the new Spread is less than the Min Spread value, a further sub-validation will occur.

42. In most cases, when the new spread is less than Min Spread, a negative spread would result. While we do not want to publish the negative spread, we do want to continue publishing new quotes to the price stream. To handle this situation, a sub-validation occurs:

43. The Matching Engine will proceed to check the best bid price against the second best ask price. If the resulting spread is greater than the Min Spread value, the quote will proceed to the next check.

44. If the resulting spread is still less than the Min Spread value, the second best bid price will be checked against the second best ask price. If the resulting spread is greater than the Min Spread value, the quote will proceed to the next check.

45. If the resulting spread is still less than the Min Spread value, the new quote will not be published and further checks will not be made.

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46. The third check is Max Price Change. The Matching Engine will check the incoming quote's bid price against the LastBBO bid price. If the difference between these prices is less than the Max Price Change value, the quote will be published and LastBBO will be updated. If the difference is greater than the Max Price Change value, the new quote will not be published (Note the same check is performed on the incoming quote's ask price against the Last BBO ask price).

**Execution Rules**

47. Trigger and Execution Scenarios for Each Order Type

48. A client order is passed through a number of business logic components before hitting the external execution engine. These components deliver all pertinent order details, including the type of order, price, and Time in Force.

49. When the order is received, the engine creates a snapshot of the available quotes and begins iterating through attempts to find the proper quote to use. Once the proper quote is identified, the request is sent to the bank adapter to route the order to the liquidity provider.

50. There are 4 sources of rejections in the system:

- a. Rejection by the business logic components because the Best Bid/Offer is no longer eligible to execute the order.
- b. Rejection by the bank adapter (non-dealing desk only) – this happens if the adapter has received a new quote that makes execution on the original quote impossible.
- c. Rejection on Price or Amount
- d. Non-Dealing Desk - Rejection by the liquidity provider (non-dealing desk only) – this happens if the liquidity provider rejects the order that is sent to it.
- e. Dealing Desk – Rejection because there is no longer liquidity available on a particular side of an instrument.

**FXCM Retail Execution Strategies**

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**Limit, FOK**

51.     A Limit order is an order to buy or sell at a specified price or better. In the FXCM system, a Limit order is triggered when the market price touches or goes through the order price (more specifically, if the order is a Buy Limit, the order is triggered when the Ask price touches or goes below the order price; if the order is a Sell Limit, the order is triggered when the Bid price touches or goes above the order price).

52.     It is also possible for a client to send a Limit order at a price that is already worse than the market price. In this case, the order will be triggered immediately, and it will be executed at the first price available (as long as the first price is still equal to or better than the order price).

53.     This order must be filled in its entirety and immediately at the customer order price or a better price, if it exists on the market.

**Limit, IOC**

54.     A Limit order is an order to buy or sell at a specified price or better. In the FXCM system, a Limit order is triggered when the market price touches or goes through the order price (more specifically, if the order is a Buy Limit, the order is triggered when the Ask price touches or goes below the order price; if the order is a Sell Limit, the order is triggered when the Bid price touches or goes above the order price).

55.     It is also possible for a client to send a Limit order at a price that is already worse than the market price. In this case, the order will be triggered immediately, and it will be executed at the first price available (as long as the first price is still equal to or better than the order price).

56.     This order must be filled immediately at the customer order price or a better price, if it exists on the market. The order can be partially filled.

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**Limit, GTC**

57.     A Limit order is an order to buy or sell at a specified price or better. In the FXCM system, a Limit order is triggered when the market price touches or goes through the order price (more specifically, if the order is a Buy Limit, the order is triggered when the Ask price touches or goes below the order price; if the order is a Sell Limit, the order is triggered when the Bid price touches or goes above the order price).

58.     It is also possible for a client to send a Limit order at a price that is already worse than the market price. In this case, the order will be triggered immediately, and it will be executed at the first price available (as long as the first price is still equal to or better than the order price).

59.     This order can be partially filled multiple times until either the full order amount is executed or the client cancels any remaining amount. If the market moves away from the Limit price, and the order is unexecuted, then the engine will send a reset command. The order must be executed at the client's order price or better, and price improvement is passed along to the client.

**Limit, GTD**

60.     A Limit order is an order to buy or sell at a specified price or better. In the FXCM system, a Limit order is triggered when the market price touches or goes through the order price (more specifically, if the order is a Buy Limit, the order is triggered when the Ask price touches or goes below the order price; if the order is a Sell Limit, the order is triggered when the Bid price touches or goes above the order price).

61.     It is also possible for a client to send a Limit order at a price that is already worse than the market price. In this case, the order will be triggered immediately, and it will be

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executed at the first price available (as long as the first price is still equal to or better than the order price).

62. This order can be partially filled multiple times until either the full order amount is executed or the client cancels any remaining amount. If the market moves away from the Limit price, and the order is unexecuted, then the engine will send a reset command. The order must be executed at the client's order price or better, and price improvement is passed along to the client. The client can specify a date and time (hours and minutes) when the order will be cancelled. If the order has not been executed by the specified date and time, the order will be cancelled by the system.

**Limit, DAY**

63. A Limit order is an order to buy or sell at a specified price or better. In the FXCM system, a Limit order is triggered when the market price touches or goes through the order price (more specifically, if the order is a Buy Limit, the order is triggered when the Ask price touches or goes below the order price; if the order is a Sell Limit, the order is triggered when the Bid price touches or goes above the order price).

64. It is also possible for a client to send a Limit order at a price that is already worse than the market price. In this case, the order will be triggered immediately, and it will be executed at the first price available (as long as the first price is still equal to or better than the order price).

65. This order can be partially filled multiple times until either the full order amount is executed or the client cancels any remaining amount. If the market moves away from the Limit price, and the order is unexecuted, then the engine will send a reset command. The order must be executed at the client's order price or better, and price improvement is passed along to the client. The order will be canceled at 17:00 NY time if it has not been executed in that trading session.

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**Previously Quoted, FOK**

66.     A previously quoted order is accessible through APIs, and it allows a client to send an order against a particular quote. In this type of order, the order can only be matched against the quote specified in the order details. It will be triggered immediately, and it will be executed if the specified quote is still valid; it will be rejected if the specified quote is no longer valid.

67.     This order must be filled in its entirety and immediately at the customer order price or a better price, if it exists on the market.

**Previously Quoted, IOC**

68.     A previously quoted order is accessible through APIs, and it allows a client to send an order against a particular quote. In this type of order, the order can only be matched against the quote specified in the order details. It will be triggered immediately, and it will be executed if the specified quote is still valid; it will be rejected if the specified quote is no longer valid.

69.     This order must be filled immediately at the customer order price or a better price, if it exists on the market. The order can be partially filled.

**Market At Best, FOK**

70.     A Market At Best order is an order to Buy or Sell immediately at the best available market price. The order is triggered immediately upon receipt by the FXCM system.

71.     This order must be filled in its entirety and immediately at the best available price on the market for the order size.

**Market At Best, IOC**

72.     A Market At Best order is an order to Buy or Sell immediately at the best available market price. The order is triggered immediately upon receipt by the FXCM system.

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73.     This order must be filled immediately at best available price on the market. The order can be partially filled.

**Market At Best, GTC**

74.     A Market At Best order is an order to Buy or Sell immediately at the best available market price. The order is triggered immediately upon receipt by the FXCM system.

75.     This order can be partially filled multiple times until either the full order amount is executed or the client cancels any remaining amount. There is no price associated with this order, so the order will be executed at the best available market price.

**Stop, GTC**

76.     A Stop order is an order that behaves like a Market At Best order when it is triggered; a stop order is triggered when the market price touches or goes through the order price (more specifically, if the order is a Buy Stop, the order is triggered when the Ask price touches or goes above the order price; if the order is a Sell Stop, the order is triggered when the Bid price touches or goes below the order price).

77.     This order can be partially filled multiple times until either the full order amount is executed or the client cancels any remaining amount. The order will be executed at the best available market price.

**Stop, GTD**

78.     A Stop order is an order that behaves like a Market At Best order when it is triggered; a stop order is triggered when the market price touches or goes through the order price (more specifically, if the order is a Buy Stop, the order is triggered when the Ask price touches or goes above the order price; if the order is a Sell Stop, the order is triggered when the Bid price touches or goes below the order price).

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79. This order is triggered when the market touches the order price (Market Bid touches Sell order price or Market Ask touches Buy order price). This order can be partially filled multiple times until either the full order amount is executed or the client cancels any remaining amount. The order will be executed at the best available market price. The client can specify a date and time (hours and minutes) when the order will be cancelled. If the order has not been executed by the specified date and time, the order will be cancelled by the database.

**Stop, DAY**

80. A Stop order is an order that behaves like a Market At Best order when it is triggered; a stop order is triggered when the market price touches or goes through the order price (more specifically, if the order is a Buy Stop, the order is triggered when the Ask price touches or goes above the order price; if the order is a Sell Stop, the order is triggered when the Bid price touches or goes below the order price).

81. This order is triggered when the market touches the order price (Market Bid touches Sell order price or Market Ask touches Buy order price). This order can be partially filled multiple times until either the full order amount is executed or the client cancels any remaining amount. The order will be executed at the best available market price. The order will be canceled at 17:00 NY time if it has not been executed in that trading session.

**Stop-Limit, GTC**

82. A Stop-Limit order is an order that contains a Stop price for triggering the order, and a Limit price controlling the worst possible price of execution. When the market price touches the Stop price on the order, the order will be triggered. The order will be executed if the quotes available for matching the order are better than or equal to the Limit price. If the quotes available for matching the order are worse than the Limit price, then the order will be reset to Waiting status.

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83.    This type of order can only be cancelled by the client.

**Stop-Limit, GTD**

84.    A Stop-Limit order is an order that contains a Stop price for triggering the order, and a Limit price controlling the worst possible price of execution. When the market price touches the Stop price on the order, the order will be triggered. The order will be executed if the quotes available for matching the order are better than or equal to the Limit price. If the quotes available for matching the order are worse than the Limit price, then the order will be reset to Waiting status.

85.    This type of order can be cancelled by the client, or it can be cancelled once the date of expiration specified by the client is reached.

**Margin Call, GTC**

86.    A Margin Call is a system-generated order that is triggered when the client's usable liquidation margin drops to 0 or below. The order behaves like a Market At Best order when it is triggered.

87.    This order can be partially filled multiple times until either the full order amount is executed or the client cancels any remaining amount. There is no price associated with this order, so the order will be executed at the best available market price.

**Matching Rules**

88.    The FXCM system will match customer orders against the best eligible price available from its liquidity providers.

89.    For Dealing Desk orders, the only liquidity provider available is the FXCM Dealing Desk. The FXCM Dealing Desk matches customer orders based on the best eligible price available from its liquidity providers.

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90.     The eligibility of a price for matching is based on the concept of a matching group, which is a collection of liquidity providers. FXCM retail customers utilize a single matching group. Within the matching group, there is one exception to use of the best price for order matching: if an order size exceeds a specified size, then the order is matched against a liquidity pool that is designed to handle larger orders.

91.     The foregoing information is accurate to the best of my knowledge and memory, keeping in mind that FXCM's system has changed over the eight year period covered by the subpoena.

I hereby declare that the foregoing is true and correct under penalty of perjury pursuant to 28 U.S.C. § 1746.

July \_\_\_, 2019

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DRAFT

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Evan Milazzo